

**RM-4 MOWER
ASSEMBLY MANUAL**

C. F. STRUCK CORPORATION
CEDARBURG, WISCONSIN 53012

RM-4 LOWER (Corrections)

Parts List

#9 Guide - change to #9 Rod.

#18 Attachment Drive Pulley (1" bore - 12hp ; 3/4" bore - 7hp).

Assembly Step #1 (add) Use 3/16" sq. Key and 3/4" bore #18 Drive Pulley for 7hp Engines.

Assembly Steps #11, 12, 13A, 13B, Adjustment Steps #1 and Operation Steps A & B (change) ; #9 Guide to #5 Guide and #5 Rod to #9 Rod.

RM4 - Mower

R M4	1	Deck Assembly	WI Washer	1/2	(2)
	1A	Deck	WI Washer	5/8	(31)
	1B	Runner	Lock Washer	5/16	(3)
	2	Hood Assembly	Lock Washer	3/8	(11)
	2A	Frame	Nut	3/8-16	(5)
	2B	Arm (left)	Lock Nut	5/16-18	(11)
	2C	Arm (right)	Lock Nut	3/8-16	(18)
	2D	Clip	Cap Screw	5/16-24 x 1	(3)
	2E	Stop	Cap Screw	5/16-18 x 3/4	(11)
	4	Control	Cap Screw	3/8-16 x 1/2	(4)
	4A	Crank	Cap Screw	3/8-16 x 1	(22)
	4B	Arm	Cap Screw	3/8-16 x 2-1/4	(1)
	4C	Plate	Cap Screw	3/8-16 x 2-1/2	(1)
	4D	Pulley	Cotter Pin	1/8 x 1	(4)
	5	Guide	Allen Wrench	1/8	(1)
	8	Caster Assembly	Allen Wrench	5/32	(1)
	8A	Angle	Felt Pad	7/8" dia.	(2)
	8B	Plate	Snap Ring		(2)
	9	Guide (2)	Hitch Pin	1/8 x 1	(1)
	10	Blade Assembly (2) consists of Key, Hub, Blade, Washer, Bolt	Key	1/4 sq x 1-1/4	(1)
			Key	3/16 sq x 1-1/4	(1)
	11	Blade Drive Assembly			
	11A	Blade Drive (LH)			
	11B	Blade Drive (RH)			
	11C	Cross-Shaft			
	11D	Coupling (2)			
	11E	Drive Pulley			
	11F	Brake Pulley			
	12	Idler Pulley, "V" - 3" dia., 3/8 bore			
	13	Idler Pulley, Flat - 2" dia., 3/8 bore			
	14	Belt (drive) A-54			
	15	Belt (brake) 4L			
	16	Spacer Tube			
	17	Idler Pulley, Flat - 3" dia., 5/8 bore			
	18	Attachment Drive Pulley (3" OD x 1" bore)			
	21	Attachment Belt Guide (2)			
	22	Caster (2)			
	24	Safety Deflector Chute			
			WI Washer	5/16	(5)
			WI Washer	3/8	(36)

RM4 - Mower

CAUTION: This Lawn Mower is to be used with models MD1200-1207 Mini-Dozer Only.

Unpacking the KIT:

Care must be exercised in unpacking the Kit to avoid bending or scratching the various components. As the parts are unpacked lay them out neatly and check the parts against the enclosed Parts List. Notify us immediately of any shortages.

NOTE: Before assembly of Mower refer to the instructions for the PTO1216 Clutch Mechanism Kit and assemble this first. The directions 'Left & Right' and 'Upper & Lower' referred to in the following instructions are determined by standing in front of the Mower and looking rearward. 'Inside' refers to the side of a part which is closest to an imaginary center line running down the length of the Mower. 'Outside' refers to the side farthest from the above defined center line.

Assembly:

1. Remove Engine mounting bolts and Exhaust Tube. Loosen and remove #32 Tractor Drive Pulley and Key. Slip new 1/4 sq x 1 Key into #18 Attachment Drive Pulley and then "hub first" slip this Pulley and Key assembly onto the Engine's crankshaft. Push #18 Pulley as close as it will go next to Engine's crankcase. Center 1/4 sq x 1 Key in Pulley and tighten set screw. Remount at the same location on Engine crankshaft the previously removed #32 Engine Drive Pulley and Key. Tighten set screw making sure #32 Pulley is properly aligned with the original #33 Main Drive Belt of Tractor as described in Tractor Assembly Instructions.
2. Remount Engine and Exhaust Tube in Tractor and secure with original Cap Screws. On 7 hp Engine: install the two #21 Attachment Belt Guides using a 5/16 Lock Washer and 5/16 WI Washer over ends of two 5/16-24 x 1 Cap Screws which are inserted into "loop end" of #21 Belt Guides. Follow with second 5/16 WI Washer on each and then screw each Guide assembly into the two forward 5/16-24 threaded holes in Engine Case - see that "90° hooked ends" of #21 Belt Guides point away from Engine Case. On 12 hp Engine: follow above but substitute 3/8-16 x 1 Cap Screws, Lock Washers and WI Washers and install in two forward 3/8-16 threaded holes in Engine case. (Check "Engine - PTO View" for proper assembly).
3. Insert #11A and 11B Drives into their respective holes in #1A Deck. (Check Drawing for proper location.)
4. Drop #2A Frame onto the #1A Deck and align the ten 5/16 holes. (Note: you must tilt the #11A and 11B Drives outward for this operation, and then tip them back so their "splined" shafts protrude into the 1-3/4 holes on each side of #2A Frame.) Using 3/8-16 x 1 Cap Screws and 3/8-16 Lock Nuts secure #11A and 11B Drives to #1A Deck. Fasten #2A Frame to #1A Deck using ten 5/16-18 x 3/4 Cap Screws and 5/16-18 Lock Nuts.
5. Insert "left" end (end with two 1/8" holes) of #4A Crank into inside of left rear 5/8" hole in #2A Frame. "Thread" the Crank through this 5/8" hole until the #4B Arm is against the inside left wall of #2A Frame.

6. On "right" end of #4A Crank slide on seven 5/8 WI Washers. Using sandpaper remove the paint on right end of #4A Crank but leave a 1/2" band next to the (above) Washers. Press #17 Flat Idler Pulley onto end of Crank so that it remains tight against Washers. Slide #16 Tube onto end of Crank followed by fifteen 5/8 WI Washers. Insert this "right" end of #4A Crank into the 5/8" hole in rear of #2A Frame and shim outside with 5/8 Washers and secure with 1/8 x 1 Cotter Pin.

7. Using 3/8-16 x 1 Cap Screws and 3/8-16 Lock Nuts secure the two #22 Casters to the #8 Caster Assembly.

8. Following the drawing closely mount #10 Blade Assemblies to the lower shaft of #11A and #11B Heads. Insert Key (Half Moon) into shaft of Head. Slide "white metal" Hub onto shaft engaging Key in slot. Assemble Blades as follows: insert 3/8-24 x 1-1/2 Cap Screw into "domed" washer (high side of washer next to screw head), then insert into large center hole of Blade and finally into Hub engaging threads in end of shaft. (Note: two slots in Blade must engage the two "pins" cast in Hub). View Blades from the bottom and check that "cutting edge" of Blade will cut when Blades rotate counter-clockwise). Also check to see Blades are not upside-down and tighten 3/8 Cap Screws.

9. After determining the cutting height, mount the #8 Caster Assembly to #2A Frame. Secure with 3/8-16 x 1 Cap Screws, Lock Washers and Nuts. (Note: lowest position cuts approximately 2", each step up is 5/8" longer cut.)

10. Following the Drawing insert the #11C Shaft into the #14 Belt and loop the #14 Belt onto the #11E Pulley. Similarly loop the #15 Belt around the #11F Pulley mounted on #11C Shaft. Slide #11D Coupling on each end of #11C Shaft. Slide this Shaft assembly into #2A Frame and align with the splined shafts protruding in from #11A and 11B Drives. Insert 7/8 dia. Felt Pad between each end of #11C Shaft and its mating spline shaft. Slide #10 Coupling on right side to engage splined shaft of (RH) Right Hand Drive. Viewing Blades from below align Blades so that they are at a 90° angle with each other. (Check drawing for proper alignment) Slide remaining Coupling onto spline shaft of (LH) Left Hand Drive. Note: When both Couplings are slid properly onto their mating splined shafts on Heads, you will notice a snap ring groove on each exposed end of #11C Shaft. Insert Snap Rings provided in these two grooves.

11. Insert 3/8-16 x 2-1/4 Cap Screw into 3/8 WI Washer and then into "inside" of 3/8 slot of #4C Plate. On outside (protruding) end of Screw, slip on in the following order: four 3/8 WI Washers, #12 Idler Pulley, four 3/8 WI Washers, #9 Guide (hook pointing inward), one 3/8 WI Washer and secure this with 3/8-16 Lock Nut. (Note: leave this assembly loose.)

12. Insert 3/8-16 x 2-1/2 Cap Screw into 3/8 WI Washer and then into #9 Guide (hook of Guide pointing in direction of Cap Screw threads.) On protruding end of Cap Screw slip on in the following order: four 3/8 WI Washers, #13 Flat Idler Pulley, and nine 3/8 WI Washers. Insert this complete assembly into the 3/8" hole in #2D Clip and loosely secure with 3/8 WI Washer and 3/8-16 Lock Nut.

13A. Following the Drawing, "thread" the #14 Drive Belt between #12 and 17 Idler Pulleys and under #13 Pulley. (Note that the #14 Belt passes between the #9 Guide and #12 Idler Pulley and also between the #9 Guide and #13 Idler Pulley - loosening the 3/8-16 Cap Screws holding the #12 and 13 Idler Pulleys will make the above step easier.)

13B. Rotate #9 Guide on #13 Idler Pulley forward so that it is at an approximate 5 o'clock position when facing directly at the Guide - tighten this Idler Assembly. Locate #12 Idler Pulley at the mid-point of its 3/8" slot in #4C Plate and with its #9 Guide approximately vertical, tighten this Idler Assembly.

14. Insert the #2B and 2C Arms into the front of the Tractor and point them upward so they are above the Engine's Pulleys. Push the Arms inward so there is sufficient slack to allow the #14 Belt to be "looped" over the #18 Attachment Drive Pulley. Also replace the #33 Tractor Drive Belt over its original #32 Tractor Drive Pulley. Rotate each #21 Attachment Belt Guide rearward so that it is approximately 1/8" above the #18 Pulley. Tighten both Cap Screws holding the #21 Guides.

15. Inside Tractor lower #2C and 2B Arms and align the 3/8" hole in each Arm with its respective 3/8" hole in the Tractor's Body Wall. Slip 3/8 WI Washer over end of 3/8-16 x 1 Cap Screw and from outside Tractor Body (on left side) slip Screw into (above aligned) 3/8" hole in Body and engage the 3/8" hole in #2C Arm. Secure inside with 3/8 WI Washer and 3/8-16 Lock Nut. Similarly slip 3/8 WI Washer over end of 3/8-16 x 1 Cap Screw and this time from inside Body insert Screw into the 3/8" hole in #2B Arm and engage 3/8" hole in Body wall - secure outside Body with 3/8 WI Washer and 3/8-16 Lock Nut. Tighten these two Cap Screws so that the #2B and 2C Arms ride smoothly against the inside of the Tractor Body without any binding.

16. At this time loop the other end of #15 Belt over the "affixed" #4D Pulley - #15 Belt should now loop around both the #4D and #11F Pulleys. Slip 5/8 WI Washer over "90° end" of #4A Crank. Then insert into "short tube" of #7 Swivel followed by second 5/8 WI Washer. Secure with 1/8 x 1 Cotter Pin on each side.

17. Mount #24 Safety Deflector Chute against the opening on right side of Mower Deck. Align the two 3/8 holes (on tabs) on each side of Chute with mating 3/8" threaded holes on #1C Plates on each side of Deck opening. Secure with 3/8-16 x 1/2 Cap Screws and Lock Washers. (Note: check that Chute points down and to rear of Mower!)

Adjustment

For the final adjustment of the Mower the Front Idler Wheels of the Dozer Track should be approximately 4" off the floor. This will allow the Mower to reach its point of furthest downward travel and the underside of #2B and 2C Arms should hit the top surface of the Engine mount to form a natural "stop".

1. With the Mower "hanging" in its lowest downward travel position the #6A Handle is rotated all the way rearward until it hits and rests on its Mud Fender. Take the #20 Collar (closest to end of #5 Rod) and push it back toward the #7 Swivel until it compresses the three "forward" #19 Springs to a total length of approximately 7-1/2".

2. Now with the Mower raised and "blocked" in its highest upward position (the 2E Stops should strike the front edge of Tractor Body to provide a natural stop of upward travel) rotate the #6A Handle forward until it hits the #5 Rod. Take the remaining #20 Collar on #5 Rod and slide it forward so that it compresses the three remaining #19 Springs to a total length of approximately 7-1/2". (At this time check that #9 Guide on #13 Idler misses touching the #14 Belt by approximately 1/8" - if it doesn't, adjust and retighten.)

3A. As the #14 Drive Belt "breaks-in" and stretches you will want to take up the slack by loosening the #12 Idler Pulley and moving it forward - retighten securely. In addition you may want to adjust the #12 Idler forward to take up some of the Belt's natural slack if it appears to have a tendency to jump off its Pulleys when tension on the Belt is released.

3B. Similarly, if the #14 Belt doesn't release its "grip" on the #18 Drive Pulley when the Belt tension is released, you may adjust the #12 Idler Pulley rearward to give the Belt more slack during the Belt's disengagement.

3C. Note: in both cases (3A and 3B above) make sure you repeat adjustment Steps #1 and 2 (above) to reset the Clutch and Brake Tension.

Operation

A. Disengaging and Braking the Mower:

Rotating #6A Handle rearward (until Handle touches Fender) pulls back #5 Rod which through the three "forward" #19 Springs exerts "rearward" spring pressure on #7 Swivel which is linked to #4A Crank. This rearward rotation of #4A Crank causes #4C Plate to rotate backward thus releasing the pressure its #12 Idler exerted on #14 Drive Belt.

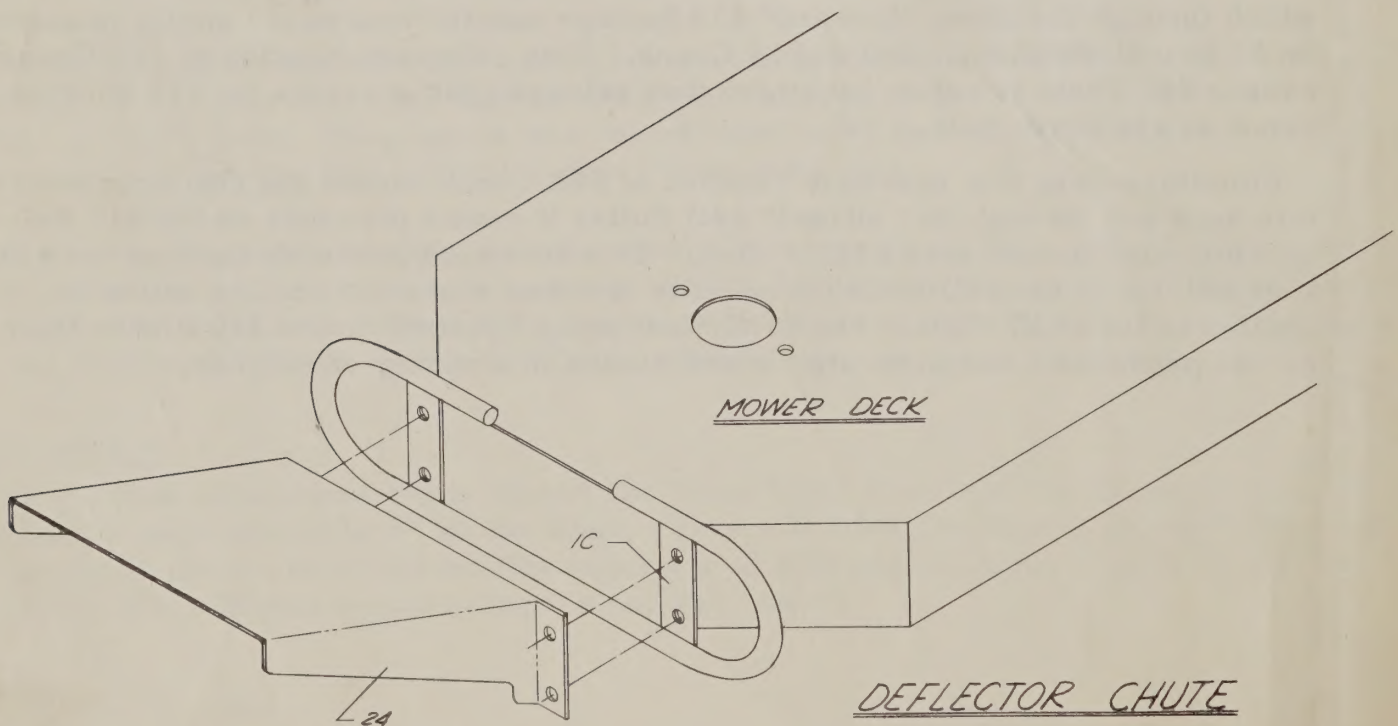
Simultaneously this rearward rotation of #4A Crank causes the #4B Arm to rotate back and through its "affixed" #4D Pulley it exerts pressure on the #15 Belt which is also looped over #11F Pulley. This rearward pressure tightens the #15 Belt and due to the #4D Pulley's inability to rotate a prompt braking action is applied to the #11C Shaft. The #11C Shaft being "geared" to the #10 Blades themselves produces a complete stop of the Blades in a matter of seconds.

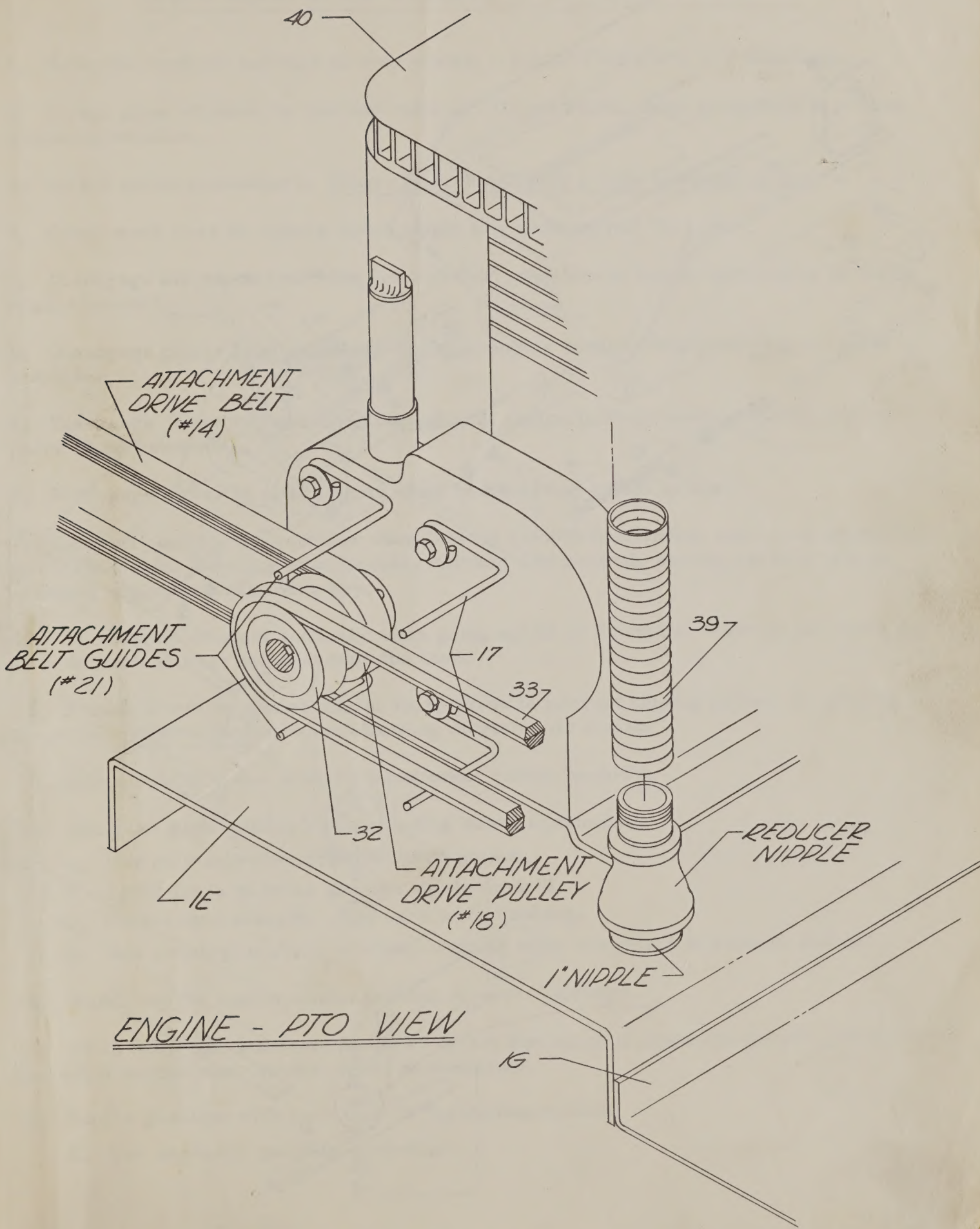
B. Engaging Mower and Releasing Brake:

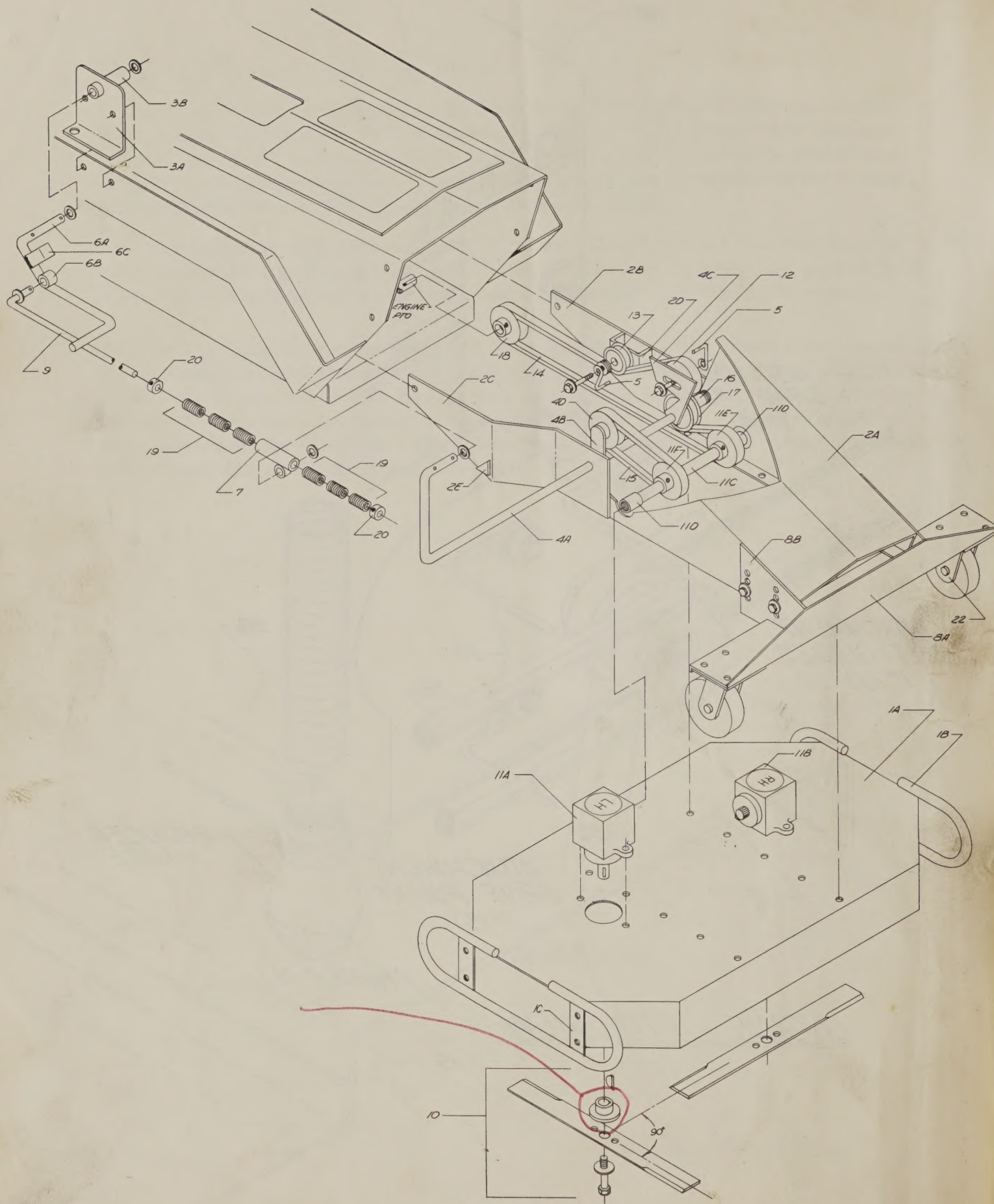
Rotating #6 Handle forward (until Handle strikes #5 Rod to form a natural stop) pushes forward on #5 Rod which through the three "rear" #19 Springs exerts "forward" spring pressure on #7 Swivel which is linked to #4A Crank. This forward rotation of #4A Crank causes #4C Plate to rotate forward thus applying pressure to #14 Drive Belt with its #12 Idler.

Simultaneously this forward rotation of #4A Crank causes the #4B Arm to rotate forward and through its #4D Pulley it releases its pressure on #15 Belt which in turn allows the #11C Shaft and its "geared" #10 Blades to rotate.

- C. Note that in both the Engagement and Disengagement of the Mower the operation of the #6 Handle should always be smooth and never forced. If excessive pressure is necessary to operate the #6 Handle this is a sign of misalignment or maladjustment. Always stop the Mower immediately and correct the problem. (At this point return to the #CA1216 Clutch Attachment instructions for proper installation and adjustment of the Interlock Circuit).







Safe Operation Practices - Riding Vehicles.

1. Know the controls and how to stop quickly - READ THE OWNER'S MANUAL.
2. Do not allow children to operate vehicle. Do not allow adults to operate it without proper instruction.
3. Do not carry passengers. Keep children and pets a safe distance away.
4. Clear work area of objects which might be picked up and thrown.
5. Disengage all attachment clutches and shift into neutral before attempting to start engine (motor).
6. Disengage power to attachments and stop engine (motor) before leaving operator position.
7. Disengage power to attachment(s) and stop engine (motor) before making any repairs or adjustments.
8. Disengage power to attachments when transporting or not in use.
9. Take all possible precautions when leaving vehicle unattended; such as disengaging power-take-off, lowering attachments, shifting into neutral, setting parking brake, stopping engine and removing key.
10. Do not stop or start suddenly when going uphill or downhill. Mow up and down the face of steep slopes; never across the face.
11. Reduce speed on slopes and in sharp turns to prevent tipping or loss of control. Exercise extreme caution when changing direction on slopes.
12. Stay alert for holes in terrain and other hidden hazards.
13. Use care when pulling loads or using heavy equipment.
 - A. Use only approved drawbar hitch points.
 - B. Limit loads to those you can safely control.
 - C. Do not turn sharply. Use care when backing.
 - D. Use counterweight(s) or wheel weights when suggested in owner's manual.
14. Watch out for traffic when crossing or near roadways.
15. When using any attachments never direct discharge of material toward bystanders nor allow anyone near vehicle while in operation.
16. Handle gasoline with care -- it is highly flammable.
 - A. Use approved gasoline container.

B. Never remove cap or add gasoline to a running or hot engine or fill fuel tank indoors. Wipe up spilled gasoline.

C. Open doors if engine is run in garage -- exhaust fumes are dangerous. Do not run engine (motor) indoors.

17. Keep vehicle and attachments in good operating condition and keep safety devices in place.

18. Keep all nuts, bolts, and screws tight to be sure equipment is in safe working condition.

19. Never store equipment with gasoline in the tank inside a building where fumes may reach an open flame or spark.

20. Allow engine to cool before storing in any enclosure.

21. To reduce fire hazard keep engine free of grass, leaves or excessive grease.

22. Vehicle and attachments should be stopped and inspected for damage after striking a foreign object and the damage should be repaired before restarting and operating the equipment.

23. Do not change engine governor settings or overspeed engine.

24. When using vehicle with mower:

(1) Mow only in daylight or in good artificial light.

(2) Never make a cutting height adjustment while engine (motor) is running if operator must dismount to do so.

(3) Shut engine (motor) off when removing grass catcher and/or unclogging chute.

(4) Check blade mounting bolts for proper tightness at frequent intervals.

